

fluence of cold. It will be remembered that he ran seven miles, and, when his clothes were drenched with rain and perspiration, lay concealed on the ground for some time, in the month of March. The herpes which occurred in this case, and in that severe one of Walsh, before alluded to, would point to repressed secretions, and a "depraved and poisoned blood." Bateman remarks of this form of eruption, that it occasionally arises from exposure to cold after violent exercise. Chorea and rheumatism, with which this man had previously suffered, appear in some constitutions to alternate, leading to the inference, that in each the "blood-poisoning" may be the same, its manifestations differing as muscle or nerve-centre is affected. In Holmes' recent *System of Surgery*, there is an interesting paper by Dr. Brown-Séquard "On the remote, indirect, or reflex effects of irritation of nerves." He says: "I can easily prove, that most of the inflammations of the various thoracic or abdominal viscera, take place through a reflex action, the starting point of which is some irritation, by cold, of periferic, sensitive, or centripetal nerve-fibres." He adds: "Of the various reflex effects of irritation of the centripetal nerves, the following are the principal: Epilepsy, tetanus, chorea," &c.

The supposition, that the foregoing was a case of successful imposture, involves the greater credulity of believing, that the subject of it possessed an accurate knowledge of the laws of the cerebro-spinal axis, and a tenacity of purpose and of physical endurance entirely unknown.

ART. XIV.—*Surgical Cases.* By JOHN ASHHURST, JR., M. D., one of the Surgeons of the Episcopal Hospital.

CASE I. *Wound of the Hand from the bursting of a Gun.*—J. W., aged seventeen, was admitted to the Episcopal Hospital of Philadelphia, about 10 A. M. on Monday, October 12th, 1863. While gunning that morning, his gun had burst in his hand. When received in the hospital, his injuries were found to be as follows: The right hand was very much torn, the metacarpal bones of all the fingers being broken near the wrist-joint, which was itself involved; there had been a good deal of hemorrhage, probably from the palmar arches, and the patient was exceedingly nervous and excitable.

A stimulating and anodyne draught having been administered, etherization was induced, and the hand amputated at the wrist-joint; ample flaps, cut from without inwards, being obtained from the front and back of the hand. Several ligatures were applied, the flaps brought together with points of the interrupted suture, lead wire being the material employed, and the stump wrapped in sheet lint steeped in undiluted laudanum, covered with oiled silk, and loosely bandaged. After a few days this dressing was changed for a poultice, which in turn gave way to proof spirit; and in ten

days the ligatures had all come away, the sutures were all removed, the flaps had united throughout, presenting a band of healthy granulations, while the patient's general condition was all that could be desired. A large abscess formed on the back of the forearm, and was opened on the fifteenth day; since which time the case has advanced favourably towards recovery.

CASE 2. *Injury of Hand from bursting of a Gun.*—In the afternoon of the same day, another patient was admitted to the hospital, with a similar injury of the left hand, received in the same way.

This patient was eighteen years of age, but of rather a weak and unhealthy appearance. In this case, partial amputation only was performed, the thumb and two fingers being allowed to remain; the wrist-joint was opened, and a portion of the carpus on the ulnar side had to be removed. Numerous ligatures were required to arrest the hemorrhage which followed the operation, and the stump was dressed in the same manner, with lead sutures and a laudanum fomentation. In both of these cases, for a few days, the febrile reaction was considerable, and required the use of diaphoretics, at the same time that the patient's strength was kept up by moderate stimulation and appropriate diet.

In this case, also, the ligatures came away in good time, and the wound, which was extensive (the flaps, from the necessities of the case, being rather scanty), presented a healthy appearance. On the tenth day, an abscess which had formed on the anterior face of the forearm was opened, and discharged a considerable quantity of healthy pus.

Although the progress of this case will be much more tedious than if the patient had submitted to amputation of the forearm, there is every reasonable prospect of his favourable recovery, with the preservation of a very useful portion of his hand.

CASE 3. *Lacerated and Contused Wound of Scalp.*—T. L., aged about twelve years, entered the Episcopal Hospital October 8th, 1863, with a large lacerated and contused wound of the scalp, the injury having been received by his being thrown from an express wagon. The large quantity of sand and dirt, which had entered the wound, prevented the immediate union which was aimed at, by close apposition of the edges with strips of gauze and collodion, and the use of a compress and bandage.

For a few days, on account of some indications of brain symptoms, the patient was kept on absolute diet, which was, however, soon modified to abundant nutriment, and finally, in the progress of the case, to free stimulation. The discharge from the wound soon became very profuse, suppuration having extended under the scalp for a considerable distance; the skull was denuded to a certain extent, and it was evident that a portion of the outer table would exfoliate before a cure could be hoped for. A hectic flush now invaded the cheeks, while occasional night-sweats contributed to exhaust the patient, whose strength became gradually less. On Oct. 23d, he had a decided chill, which was repeated the subsequent days. On the 27th, symptoms of coma were manifested, which were so increased the following day as to amount to absolute insensibility. At the same time he became paralyzed on the left side of the body; he died comatose on the morning of the 29th.

The great haste with which the parents removed the body, rendered it impossible to obtain a *post-mortem* examination. I have little doubt that, had an autopsy been made, there would have been found effusion, probably purulent, over the right hemisphere of the brain, with perhaps abscesses in the liver or lungs.

The possible propriety of trephining occurred to me in this case; but had I employed that operation, I doubt not there would have been added one more case to the long list where it has seemed but to hasten the fatal issue. The repeated occurrence of rigors before any brain symptoms were manifested, rendered it probable that the pyogenic diathesis, or whatever the condition or state of body really may be which has received the name *pyemia*, was already so far developed as to render any surgical interference useless, and merely an additional source of suffering.

CASE 4. *Ligature of Brachial Artery for Hemorrhage from Wound.*—In the April number of the *American Journal of Medical Sciences* I reported, among other surgical cases, one in which I had tied the brachial artery, on account of hemorrhage following amputation of the forearm. In that case hemorrhage recurred, sloughing followed, and the patient died on the tenth day after the second, and the seventeenth from the first operation. In the case now reported, on some considerations, as bad a result might have been expected.

Wm. Henderson, private, Co. "E," 115th regiment Pennsylvania Volunteers, was wounded at the battle of Gettysburg, and entered the Cuyler Hospital, Germantown, Pa., on July 6th, 1863. The medical officer, in whose ward he was placed, having been relieved from duty in the beginning of August, he was left without regular surgical attendance, being visited by the medical officer of the day as occasion required, until August 8th, when profuse and dangerous arterial hemorrhage having occurred, I was directed by the surgeon in charge to assume the care of the patient. There were two large wounds on the ulnar side of the left forearm, a little above the wrist, through which the fingers of either hand could be made to meet. The ulna was fractured, several partially detached fragments being felt. Repeated but fruitless attempts were made to find and secure the bleeding vessel in the wound. Ligation of the ulnar artery was suggested, but, in view of the free arterial anastomosis in that part, was rejected; and the question finally rested between ligation of the brachial and amputation. The latter appeared the safer operation, but as the patient's general health was good, and the hemorrhage, though profuse, had not been long continued, ligation was chosen, as giving a chance to preserve the limb, and not materially interfering with the prospective good results of a future amputation, should such become necessary.

The brachial artery was accordingly tied in its middle third with a double ligature; the lips of the wound being brought together with a hare-lip pin, and covered with a compress and bandage; this dressing was not disturbed for six days, when the wound was found healed through nearly its whole extent.

The original wound was dressed with a fermenting poultice, and the

whole limb placed at rest on an appropriate splint. A stimulant and anodyne treatment was at the same time adopted.

The next day, *August 9th*, the temperature and colour of the affected limb were pretty good; the patient complained of coldness of the fingers, especially the little finger. *August 10th*, colour and temperature above seat of fracture normal; below, skin was dark, cool, and in some places boggy. The discharge was profuse and sanious, large masses of sloughing tissue coming away from time to time; the weather was excessively hot, the patient sweating profusely, and apparently gradually sinking.

He was now moved to a cooler apartment, and the next day (11th) was in every respect better. The sloughing was evidently circumscribed, and the danger of general gangrene of the limb apparently averted. From this time the patient rapidly improved; the ligature came away on the eleventh day (*Aug. 19th*) with the loop entire, and a week later the patient would have been supposed to have had merely a slight and rapidly healing flesh wound of the forearm, with a simple linear incision of the upper arm. This soldier was furloughed, with other Pennsylvanians, in the latter part of September.

I have reported this case with more minuteness, perhaps, than it may seem to deserve; but I have done so, because I believe its successful issue to have been exceptional; in most cases of compound fracture in an extremity, I think hemorrhage should be the indication for removal of the limb. Certainly, if this man had been exhausted by repeated bleeding, or other previous untoward circumstances, I should have much preferred the "humane operation," which I believe, in such cases, would be also the most truly conservative.

CASE 5. Severe Injury by Railroad Accident.—This patient, a man thirty years of age, was admitted to the Episcopal Hospital during the service of my predecessor, August 14, 1863.

He had been seriously injured by a railroad accident the day previously, sustaining a fracture of the left clavicle, and more than one severe flesh wound, besides a compound fracture of the left leg, which became the subject of resection in the continuity of the bone some three weeks later. After the operation the soft parts were approximated, and the limb, surrounded with bran, placed in a fracture-box.

Seven or eight weeks later, there was no attempt at union, the discharge profuse and offensive, the soft tissues œdematous and evidently infiltrated with pus, while the patient, suffering greatly from pain, was daily becoming weaker, and his recovery daily more improbable.

On the 24th October, more than ten weeks from his admission, I removed the leg a short distance below the knee, cutting anterior and posterior flaps from without inwards; numerous ligatures were applied, the flaps brought closely together with lead sutures, and the stump dressed with a laudanum fomentation. One week later, the flaps were completely adherent, all the ligatures having come away, and with every prospect of a rapid and satisfactory recovery.

Dissection of the amputated limb showed large sloughing abscesses, extending in various directions from the seat of injury; both fragments of bone were exposed and rough, the periosteum also being in a sloughing

condition. The extremities of both fragments were enlarged, presenting much the appearance of a false joint. [The specimen was exhibited before the Pathological Society of Philadelphia, Oct. 28th, 1863.]

In the number of the *American Journal of the Medical Sciences* for April, 1863, I reported a case of resection of the humerus, where secondary hemorrhage required amputation above the seat of injury; and I then expressed the opinion, that resection in the continuity of long bones was not truly a conservative operation. I have seen nothing since then to induce me to alter my convictions on the subject, and the case I have just related, certainly would not tend to give me a different impression. I believe the time will come, when the practice of sawing off the ends of recently fractured bones to promote union, will seem as questionable, as does to us the custom of the older surgeons, of promoting exfoliation by cauterizing the bone after amputation, or in scalp wounds.

CASE 6. Injury of the Forearm by Machinery.—J. M., a German, aged fifty-two years, was admitted to the Episcopal Hospital about noon of the 22d October, 1863, suffering from a very bad injury of the left forearm.

His hand had been caught in the machinery of a rope factory, where he worked, and was almost entirely twisted off, hanging by the skin merely, while the broken ends of both bones projected from the wound. He had lost a good deal of blood, and was very much prostrated, suffering greatly from pain and nervous exhaustion. I confess I hesitated for a few moments, as to whether an operation would be proper in his feeble condition; but his terribly mangled limb was so evidently depressing him, and more than the amputation would probably do, that I concluded to operate at once, without waiting for further reaction. He had already been well plied with whiskey and laudanum, and the event justified my course; for the pulse rose immediately under ether, and was decidedly better when the operation was concluded than at its commencement.

The amputation was done with anterior and posterior flaps, cut from without inwards, the bones being divided a few inches below the elbow, and the stump dressed with laudanum, as in the previous cases. Consecutive hemorrhage during the following night required the stump to be opened, when a vessel was found and secured which had not bled during the operation, probably from the low state, at that time, of the patient's arterial circulation.

This man, during the twelve hours succeeding the operation, sank very low, being at times almost pulseless; but through the unremitting and skilful care of the resident surgeon, Dr. Gittings, happily rallied, and the next morning was as well as under the circumstances could be anticipated.

On October 28th, this patient had a chill, repeated twice within twenty-four hours, and once or twice on subsequent days. While the appearance of the stump was healthy, his general condition became gradually worse. He was at times quite soporose, and on the twelfth day complained of inability to move the left leg. From this time he became slowly weaker, and expired early on the morning of November 4th, the fourteenth day from the amputation.

An autopsy was made eight hours after death, with the following results:—

Rigor mortis, strongly marked.

Cranium, not examined, owing to the haste with which the autopsy was necessarily conducted, the friends of the deceased being anxious to remove the body.

Thorax. Right lung completely adherent; left lung free, except in some adhesions to the diaphragm; considerable effusion in the left pleural cavity. Both lungs congested, and the bronchial tubes filled with frothy mucus. Heart decidedly fatty; old fibrinous clots in both ventricles, extending into the aorta and pulmonary artery respectively, and binding together the chordæ tendineæ on either side.

Abdomen. Liver fatty; left kidney rather small, nodular on its surface, and when cut open presenting a granular appearance; it might, not inappropriately, have been described as a "nutmeg" kidney; a small serous cyst was found upon its surface. The right kidney unusually adherent to its capsule, but healthy. No other abnormal appearances were observed.

There is no question in surgery more perplexing than, in a severe compound fracture, or other serious injury to an extremity, to decide when the precise stage of reaction has arrived, at which it would be proper to proceed to operative interference.

Many surgeons of skill and experience would on no account perform an amputation before the patient had completely reacted; and, in consequence, a certain proportion of their patients die unamputated. They, of course, in this way lose fewer cases after operation than if they were less cautious, but I question if they do not lose some cases that a timely operation might have saved. Every case must be decided by itself, no general rule being applicable to all. If the injury were not very severe, and the *shock* apparently more mental than physical, I should be disposed to delay; for in such a case time of itself would be restorative. But if the limb be entirely torn off, or otherwise very much mangled; if the hemorrhage has been profuse, and the patient seem sinking rather than improving, I should be inclined to think the operation a less evil than delay. Of course, I would not advise amputation in *articulo mortis*, nor if death appeared inevitable under any circumstances; but I am sure that the pulse often will be found to rise even during the operation (especially if a moderate quantity of ether be employed); and that he who always waits for complete reaction will sometimes tarry till his patient has passed into another world. Caution must sometimes give way to decision; and a surgeon should never permit any personal consideration of success, or the want of it, as an operator, to outweigh what he honestly believes to be for the best interest of the patient committed to his care.

The mode of amputation is a matter of very secondary importance. The operation by double flaps, cut from without inwards, which was performed in the cases narrated above, seems to me, under ordinary circumstances, the best; for these reasons: It exposes the centre of the stump better than the circular operation, and is more easily and rapidly performed; while it insures the skin being cut longer than the muscles, which is not the case where the flaps are made by transfixion. It, moreover, requires the use of

but one knife for the several steps of the operation, thus simplifying the surgeon's *armamentarium*, sometimes a matter of considerable importance.

The plan of dressing the stump with undiluted laudanum secures more ease to the patient than any other; while it obviates, as far as possible, the risks of sloughing or tetanus.

ART. XV.—*On Diphtheria and its Treatment.* By C. D. MEIGS, M. D.,
Emeritus Professor of Midwifery in Jefferson Medical College, Philadelphia.

NEAR IVY MILLS, DEL. CO., NOV. 23, 1863.

MY DEAR DOCTOR HAYS: A few days since I received, late in the evening, a letter from a physician in Missouri, asking me to express for him my opinion on the treatment of a desolating epidemic of diphtheria in the district in which he practises his art. That letter, which was laid on my table, was lost, so that when I had written out the answer contained in the paper now inclosed and was ready to address it, I could by no means do so, having thus unfortunately mislaid or lost the names of both the physician and his post office.

If you will be so kind as to look over my answer and decide whether it might properly become a page of your Medical Journal, I should be very much gratified to see it in your next number. I am much pained to think that the gentleman, my professional brother, should have the least ground to consider me as a person rude enough to disregard an interesting communication that produced in me anything but feelings of indifference to him. As he is probably a reader of your work, I hope, in this way, to give him my answer.

I rest, my dear Doctor,
with long regard, your obliged
friend and servant,
CHAS. D. MEIGS, M. D.

To Dr. I. HAYS, Editor, &c. &c.

DELAWARE CO., PA., NOV. 15, 1863.

MY DEAR SIR: Your esteemed favour was handed to me here in the country (eighteen miles from Philadelphia) yesterday evening, and I now have to thank you for the honour of your confidence to the extent of asking my opinion in a case so embarrassing as yours. I think that, in a very protracted experience as physician, I have found nothing more painful to my sensibility than the incidents I had to contend against in destructive epidemics. Hence I am in a way to sympathize with you in the annoying circumstances attending the breaking out of epidemic diphtheria in your vicinity.

I shall not decline, in pursuance of your invitation, to give you some of the views I have taken on the subject of that pernicious epidemic, and while I apprehend that you will certainly dissent from my opinions, I claim